

SCRATCH TESTER

BEVS 2801

User Manual



Version 201412

This manual shall be read carefully before starting. Directions included in this operation manual shall be strictly followed.

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1 Company Profile

BEVS Industrial Co., Ltd. is a leading manufacturer that specializes in coatings, ink, painting, resin testing instruments and laboratory whole solution.

We offer the complete and unique products in this field to meet customer's challenging demands of today and tomorrow, the products are complied with the standards of ISO, ASTM, DIN, BS, EN etc.

With strong supports and hard work by lots of end-users and worldwide agents, BEVS become more and more famous in the world and provides more competitive values for our customers.

2 Product Introduction

For product surface coating, such as coil coating, can ink, 3C ink and automotive coating etc. It is necessary to test its scratch resistance performance. Enable to measure with the BEVS 2801 Automatic Scratch Tester.

2.1 Introduction

Scratch Tester is applied to the scratch resistance performance evaluation of single coating or complex coating system in insulated color coated sheet. It will be known the coating scratch resistance performance by evaluating whether the coating is scratched by tungsten carbide hemispherical stylus with a certain weight or the maximum load of the coating which can not be scratched.

The Scratch Tester of BEVS is complied with the standards of ISO1518, BS3900, ASTM D5178 and ASTM D2197.

Enable to display the graph of scratch on the screen in real time and show the test result on the screen directly display OK or NG .

2.2 Technical Specification

2.2.1 Dimension: 420×330×320mm

2.2.2 Scratch Speed: 30-40 mm/sec

2.2.3 Travel Distance: 65mm

2.2.4 Panel Holder: metallic test panel size 100 x 150 x 0.2mm

2.2.5 Scratching Tool: 1 mm tungsten carbide hemispherical tip

2.2.6 Power: 240 V/50 Hz

2.3 Features

- Big LCD design, touch-screen operation
- Operating Menu: Chinese or English
- Adjustable work platform---More convenient
- Display the test result on the conductive substrate
- High Hardness Scriber---More durable
- Special design for sample clamp---Equipped with ruler
- Show the testing procedure with real time graph

3 Operation Introduction

3.1 Operating Environment

3.1.1 When using the instrument, should be paid attention to the following points.

3.1.1.1 Forbid the operation in too hot environment

3.1.1.2 Forbid the operation in too wet environment

3.1.1.3 Forbid the operation in vibration environment and keep the environment clean.

3.1.2 This instrument is used in the laboratory, the technical indicator of operation environment as following.

3.1.2.1 Temperature 10℃ ~ 35℃

3.1.2.2 Humidity 15 ~ 85% No Condensation

3.2 Positioned Place

3.2.1 Put the instrument on the firm surface with suitable power plug

3.2.2 Turn the operation panel to face the operator, make sure operator has enough space to control the instrument and put the sample in the holder

3.2.3 Put the weight with suitable load on the instrument to make the stylus that can move freely.

3.2.4 Put gradienter in the sample holder to check the instrument whether be in the horizontal plane, if not, and then adjusts the position till the instrument is in the horizontal plane

3.3 Power

Must use the power with the ground wire

3.4 Appearance Description

3.4.1 Composition: metal with protective film, driving motor, bearing frame, touch screen control panel.

3.4.2 Install in the test panel evenly, fix the stylus under the small bearing frame in balance arm.

3.5 Operation Guideline

3.5.1 Sample Preparation And Installation

1) Prepare the sample test panels (90 X 150 X 0.2) in accordance with associated product test documents, e.g. conditioning panels before test. Note temperature and humidity conditions for the duration test.

2) Before each test examine the stylus (needle using a high power magnifying glass to check that the tip is smooth hemispherical and free from contamination. Clean and or replace the stylus accordingly. Ensure the stylus is held firmly in the holder. Lift up the balance arm, unscrew the bearing nut, install stylus and screw up

3) Place the Spindle into the Balance Arm (hole located above the needle holder) connect the instrument to the electrical supply and set the ON /OFF switch to the ON position.

Carefully lift the BALANCE ARM away from the PANEL HOLDER then operate the RUN button to the RUN position.

4) Carefully lower the BALANCE ARM and allow it to settle, the arm should sit parallel with the PANEL HOLDER. (Adjust the BALANCE WEIGHT, use -- A/F hexagon wrench to loosen the fixing screw)

5) After checking the BALANCE ARM to be level set the RETURN switch to the RETURN position.

6) Place a prepared sample test panel on to the PANEL HOLDER, by sliding the panel under the

scratching / marring tool without any damaging the panel surface. Locate the panel under the PANEL CLAMP till the edge of the panel touches the back of the CLAMP. Tighten the lock switch to hold the panel in position. Place the initial 100g weight onto the SPINDLE.

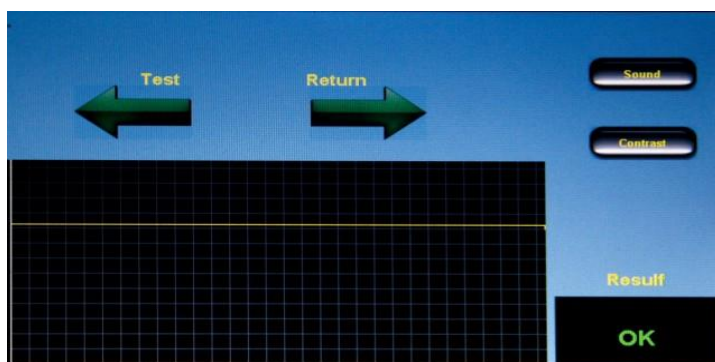
IMPORTANT: KEEP BOTH HANDS AWAY FROM THE PANEL HOLDER AREA.

3.5.2 Start To Test

- 1) Connect the power (220V,50Hz)
- 2) Turn on the power switch
- 3) Enter the welcome screen and select the language



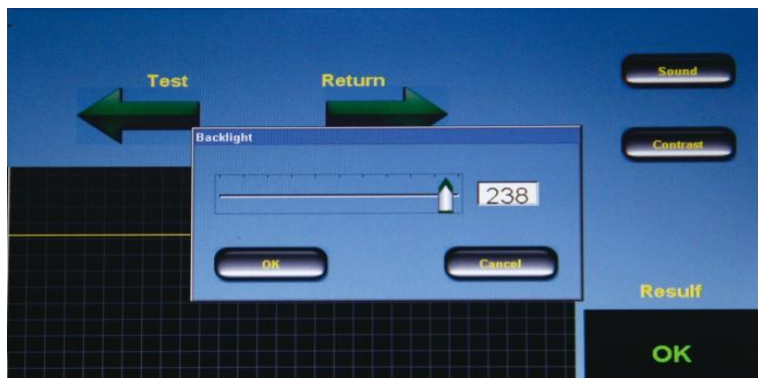
- 4) Press "Test" bottom to start test



- 5) The result area will display the scrub status, Intuitive expressed in curve when testing
- 6) The test result will show OK or NG, here OK indicate not scratch the product surface, NG indicate scratch the product surface.
- 7) After finishing the test to return platform, PLEASE LIFT UP BALANACE ARM and then PRESS RETURN BUTTON to return

3.5.3 Setting Touch-screen Parameter

- 1) Press “mute” bottom to forbid the buzzle
- 2) Move “backlight” bottom to adjust the brightness of screen



3.6 Stylus Place Checking

3.6.1 Keep the distance between stylus and sliding plate is less than 0.1mm when the machine is working

3.6.2 For checking whether the distance between stylus and sliding plate is correct or not, connect the power and press the “test” bottom, the sliding plate will move to the left

3.6.3 Put one piece of 0.15mm slice on the sliding plate and under the stylus, adjust the height of stylus according to the need

3.6.4 Tighten the screw after adjusting the height of stylus and double check whether the space between stylus and sliding plate is suitable or not

3.7 Measurement Range

3.7.1 Only use the substrate in good conduction

3.7.2 The maximum thickness of testing sample: 1.6mm

3.7.3 Testing thickness of the film: 0.3mm

3.7.4 Not allow to use in the soft material test plate, such as rubber

4 Maintenance

- 4.1 Regular maintenance is necessary
- 4.2 Make sure that the instrument is in off status and the power is in outage status
- 4.3 When the stylus across the film in the test plate, if some chippings happened, it means the stylus is broken, should change in time
- 4.4 Clean with the soft cloth, forbid to use the chemical reagent with corrosive

5 Attention

- 5.1 Read the user manual carefully before operation
- 5.2 Keep the operation manual for the future reference
- 5.3 Learn more about the safe operation details
- 5.4 Not allow to operate in potential explosive environment and in liquid status
- 5.5 Must operate in the horizontal table
- 5.6 Not allow to touch the instrument when the instrument is working

Return of goods

Where the instrument has to be returned to the local agent or BEVS Industrial Ltd for any reason, it is very important that the original packing box is used. The box has been specially designed to offer good protection for transportation of the instrument. Where the original packing is not available we strongly recommend you use the services of a professional packing company in order to minimize the possibility of damage. For further information please contact your local agent of the Dispatch Department or BEVS Industrial Ltd

6 Packing List

No.	Name	Item/Specification	Unit	Quantity
1	Scratch Tester	BEVS 2801	set	1
2	Weight	1000g	pc	1
		500g	pc	1
		200g	pc	1
		100g	pc	2
		50g	pc	2
3	Power lead		pc	1
4	User Manual		pc	1
5	Certificate of conformity		pc	1
6	Touch Pen		pc	1

7 Order Information

BEVS 2801 Scratch Tester

BEVS 2801/P/001 Stylus

BEVS 2801/P/002 Weight (1000g/500g/200g/100g/50g/20g)